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PATENT
Attorney Docket No.: 02307V-121600US
Client Ref. No.: B02-027-1

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

On

Feb. 8, 2005

TOWNSEND and TOWNSEND and CREW LLP

By:

[Signature]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

William R. ASHURST et al.

Application No.: 10/086,652

Filed: February 28, 2002

For: VAPOR DEPOSITION OF
DIHALODIALKYL SILANES

Customer No.: 20350

Confirmation No. 6884

Examiner: Markham, Wesley D.

Technology Center/Art Unit: 1762

**DECLARATION OF WILLIAM R.
ASHURST UNDER 37 CFR §1.131
WITH CONFIRMATION BY CO-
INVENTORS**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, WILLIAM R. ASHURST, hereby declare as follows:

1. I am the William R. Ashurst listed as the first-named inventor in the above-identified patent application. I have reviewed the document bearing the caption "AMENDMENT NO. 1" including the amendment to the claims of the application.

2. Attached hereto as Exhibits A and B are true copies, except that dates have been blocked out, of pages from a laboratory notebook or notebooks maintained by me, the

entries on these pages having been made by me. The drawing and entries on Exhibit A are notes taken during a conference between myself and one of my coinventors on this patent application, and the entries on Exhibit B are accurate descriptions of materials and processing conditions that I used. The drawing on Exhibit A and the entries on both Exhibits describe coating procedures and materials that fall within the scope of claim 1 of the patent application. Both notebook pages were completed prior to May 7, 2001.

3. A transcription and explanations of the entries on Exhibit B, line by line, are set forth below:

<u>Entry</u>	<u>Explanation</u>
"VapSAM coater"	This indicates that the type of experiment was a vapor coating process.
"Processing WRA0067 & WRA0068"	These are code numbers that I assigned, using as a format my initials followed by four digits.
"Sandia Reticle 156"	This refers to micromachine chips produced at Sandia National Laboratories, layout no. TP156.
"Standard release:"	This refers to the release procedure set forth in the succeeding lines.
"90 m HF/HCl"	The first step was a 90-minute exposure of the chips to an etchant containing HF and HCl.
"Water Rinse"	
"H ₂ O ₂ xfer"	The chips were exposed to H ₂ O ₂ to partially oxidize the surfaces to facilitate their transfer to the de-scumming solution.
"Descum @ 70°C 10 m"	The chips were treated in a de-scumming solution containing ammonia, H ₂ O ₂ and water at 70°C for ten minutes.
"H ₂ O ₂ @ 80°C 10 m"	The chips were immersed in H ₂ O ₂ at 80°C for ten minutes to make sure that the surfaces were clean and oxidized.

“Water Rinse & Dry” --

“Chiplet + WRA0068 >> VapSAM (DDMS)”

A “chiplet” (i.e., a small piece of Si(100) wafer) and one micromachine sample were placed in a vapor coater apparatus.

“Chiplet + WRA0068 put in VapSAM”

Same as above.

“Pumpdown $< 1 \times 10^{-4}$ ”

After the samples were placed in the chamber of the vapor coater apparatus, the chamber was evacuated to a pressure reading of less than 0.1 milliTor.

“heatup $\sim 35^{\circ}\text{C}$ ”

Mild heating was applied to elevate the sample temperature to about 35°C .

“expose 2 torr H_2O + 1 torr DDMS for 5 m”

Water vapor was added to the chamber to a pressure of 2 Torr; DDMS vapor was then added until the pressure reading was 1 Torr greater (for a total of 3 Torr), and this condition was held for 5 minutes.

“Pumpdown $< 1 \times 10^{-4}$ ”

The chamber was then evacuated to a pressure reading of less than 0.1 milliTor.

“ $T = 43^{\circ}\text{C}$ ”

The sample temperature as measured was 43°C .

“expose 2.2 torr H_2O + 1.1 torr DDMS for 20 m”

Water vapor was added to the chamber until the pressure reading was 2.2 Torr; DDMS was then added until the pressure reading was 1.1 Torr greater (for a total of 3.3 Torr) and these conditions were then held for 20 minutes.

“Pumpdown $< 1 \times 10^{-4}$ ”

The chamber was again evacuated to a pressure reading of less than 0.1 milliTor.

“ N_2 backfill”

The chamber was then vented with dry nitrogen gas until the pressure was atmospheric.

“remove water $<$ chiplet = 100° ”

The samples were removed from the chamber and the water contact angle on the Si(100) chiplet was immediately measured to be 100° .

ASHURST et al., Application No. 10/086,652

Examiner: Markham, W.D.; Art Unit 1762

DECLARATION OF WILLIAM R. ASHURST UNDER 37 CFR §1.131 WITH CONFIRMATION

4. I further declare that the above statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: Feb. 7, 2005 By: William R. Ashurst
William R. Ashurst

We, the co-inventors of William R. Ashurst, confirm that to the best of our knowledge the statements above are true. We likewise declare that this statement is being made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: _____ By: _____
Roya Maboudian

Date: _____ By: _____
Carlo Carraro

Date: _____ By: _____
Wilhelm Frey

Attachments: Exhibits A and B

MHH:mhh
60362143 v1

4. I further declare that the above statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: _____ By: _____
William R. Ashurst

We, the co-inventors of William R. Ashurst, confirm that to the best of our knowledge the statements above are true. We likewise declare that this statement is being made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: Nov. 30, 2004 By: Roya Maboudian
Roya Maboudian

Date: Nov. 30, 2004 By: Carlo Carraro
Carlo Carraro

Date: _____ By: _____
Wilhelm Frey

Attachments: Exhibits A and B

MHH:mhh
60362143 v1

DECLARATION OF WILLIAM R. ASHURST UNDER 37 CFR §1.131 WITH CONFIRMATION

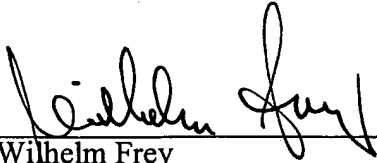
4. I further declare that the above statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: _____ By: _____
William R. Ashurst

We, the co-inventors of William R. Ashurst, confirm that to the best of our knowledge the statements above are true. We likewise declare that this statement is being made with the knowledge that willful false statements and the like are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of the subject patent application or any patent resulting therefrom.

Date: _____ By: _____
Roya Maboudian

Date: _____ By: _____
Carlo Carraro

Date: Nov 24, 2004 By: 
Wilhelm Frey

Attachments: Exhibits A and B

MHH:mhh
60362143 v1



Meeting w/ Will/ Fred of BOSCH

Need: Pressure Gauge
Thermocouple Feed-through.

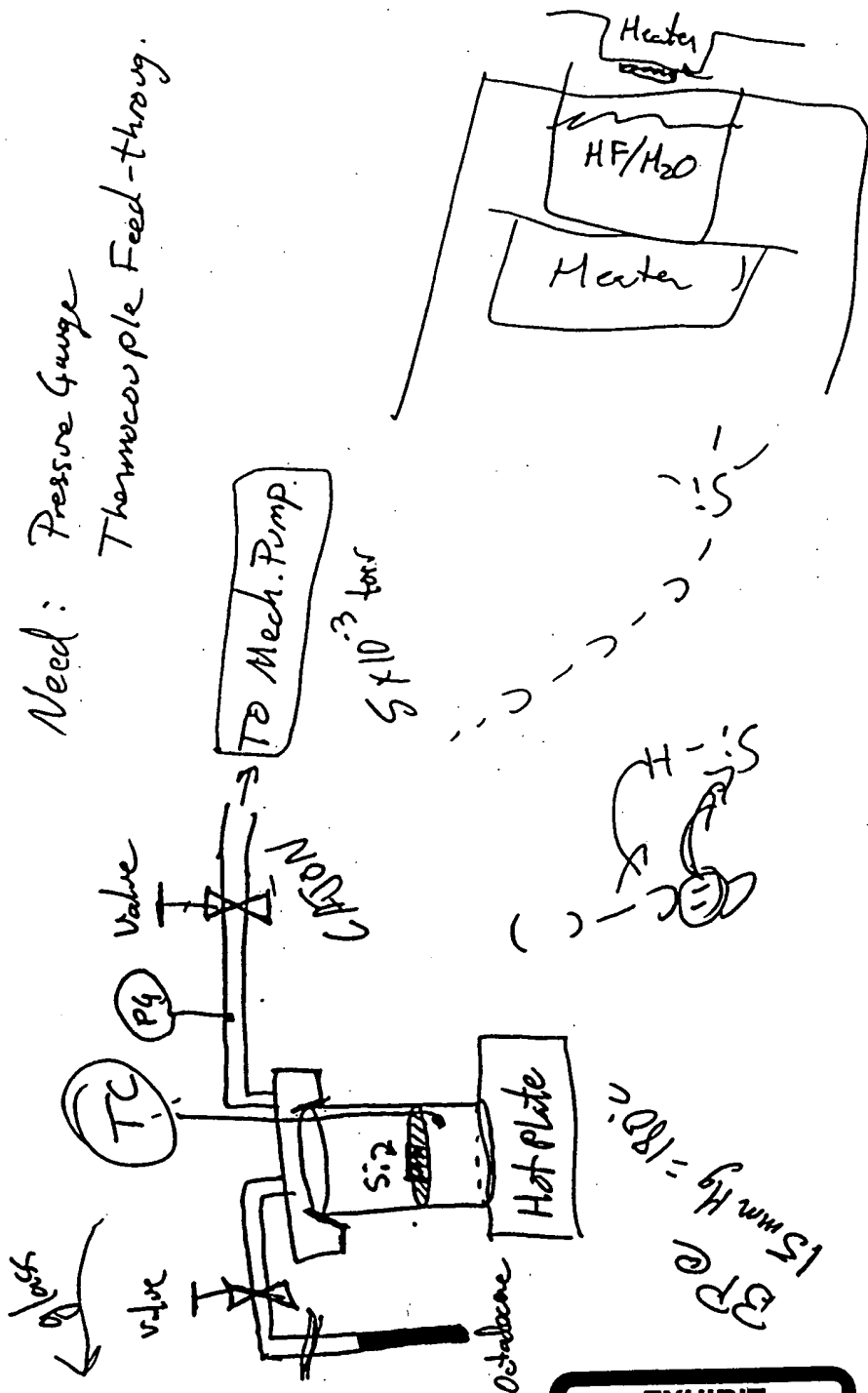


EXHIBIT
A



Vap SAM coater
Processing WRA0067 + WRA0068
Sandia Reticle 156
Standard Release i
90 in HF/HCl
Water Rinse
H₂O₂ x fcy
Descum @ 70°C 10 in
H₂O₂ @ 80°C 10 in
Water Rinse + Dry

Chiplet + WRA0068 >> Vap SAM (DDMS)

Chiplet + WRA0068 put in Vap Sam

Pumpdown < 1×10^{-4}

heat up ~ 35°C

expose 2 torr H₂O + 1 torr DDMS for 5 in

pumpdown < 1×10^{-4}

T = 43°C

expose ~~2.2~~ 2.2 torr H₂O + 1.1 torr DDMS for 20 in

pumpdown < 1×10^{-4}

N₂ back f. 11

remove water & chiplet = 100°

EXHIBIT

B

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